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ABSTRACT

To understand how children in whole language kindergartens develop as writers and readers, seven kindergarten teacher/researchers and a university teacher/researcher studied 183 children in the Manhattan-Ogden, Kansas, school district over one school year. Each quarter, teachers recorded all the writing behaviors they had observed in their students. At the beginning and end of the year, they assessed students' ability to recognize letters, sounds, and words, and their ability to read connected text. Results indicated that when children are encouraged to invent texts, they grow as writers, regardless of the reading and writing behaviors they bring to school. Patterns of growth were quite individual and often consisted of the addition of new writing behaviors rather than the abandonment of old behaviors. (Four tables of data are included; 22 references and three appendixes containing teacher questionnaires are attached.) (SR)

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CENTER FOR THE STUDY OF READING

A READING RESEARCH AND EDUCATION CENTER REPORT

Technical Report No. 436

LITERACY DEVELOPMENT IN WHOLE LANGUAGE KINDERGARTENS

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September 1988

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Abstract

Seven kindergarten teacher/researchers and a university teacher/researcher studied how 183 children in whole language kindergartens developed as writers and readers. Each quarter, teachers recorded all the writing behaviors they had observed in their students. At the beginning and end of the year, they assessed students' ability to recognize letters, sounds, and words, and their ability to read connected text. We learned that when children are encouraged to invent texts, they grow as writers, regardless of the reading and writing behaviors they bring to school. At the same time, we learned that the patterns of growth were quite individual and often consisted of the addition of new writing behaviors rather than the abandonment of old behaviors. The study, in whole language classrooms that are based largely on effective home literacy environments, provides a way to study the continuing emergence of literacy in a school setting.

LITERACY DEVELOPMENT IN WHOLE LANGUAGE KINDERGARTENS

Jun Kim, who spoke both Korean and English, drew many detailed pictures during his first few months of school, but rarely added any type of print. By the end of the year, he was making long lists of perfectly copied words which he systematically gathered from around the room. Allie, from a highly literate home, dictated stories to her teacher and scribbled her own stories at the beginning of the year. By May, she was sounding out the words she needed for her writing. Lawrence, who came to school with little previous interaction with print, fell in love with books. He imitated and invented texts through scribble writing, mock letters, and dictation. He did not give up these varied methods of expression, but by the end of the year he had added letter inventories and mock words, with occasional attempts to write the sounds he heard in words.

These children and the other 180 children that we studied during their kindergarten year might appear to be from disperate classrooms: one where the teacher encouraged copying to learn about words, one where the teacher used dictation as a lead into reading and writing, and one in which the teacher emphasized literature as the connection to literacy. In fact, the seven teachers in the study all ascribed to the same basic philosophy of literacy development, a whole language philosophy grounded in the belief that children who have daily opportunities to interact with a variety of print sources for a variety of real purposes, supported by peers and a knowledgeable teacher, become more literate. Because of their philosophy, the teachers were able to build on individual interests and strengths.

The teachers taught writing as a process, integrated the language arts, surrounded the children with real books, including child-authored texts, and made songs, rhymes and chants an integral part of the literacy environments they created. Then, because they wanted to know more about how what they did affected how their children learned, the teachers studied themselves and the children.

These 7 teachers were part of a group of 25 elementary school teachers who had asked me to lead a year-long inquiry of literacy development in whole language classrooms. This was the first year of the on-going Whole Language Literacy Program in the Manhattan-Ogden, Kansas school district. We met each week to discuss common readings and to share observations, problems, and insights from our implementation efforts. I asked that all the teachers study some aspect of whole language instruction in their classrooms (Allen, 1986); in turn, I agreed to serve as an additional teacher, a classroom observer, and/or a co-researcher.

The kindergarten teachers were eager to explore and document a number of reading and writing, teaching and learning issues in their rooms. Two key issues emerged early in our weekly meetings. First, we wanted to know how kindergarten teachers implement a whole language philosophy in relationship to teaching writing. Because we were using Graves (1983) for guidelines in our writing program and his book begins with the first grade, we wanted to document what the writing process looks like in kindergarten. How much time would we devote? Where would we find the time? What kind, and how much assistance would we provide our young readers and writers? What place would district curricular materials find in our whole language classrooms? How would we be able to integrate reading, talking, thinking, writing, and listening in a true whole language approach, that is, one in which language was used for meaningful purposes, in natural forms? Would each teacher be different, as in the methodology studies of first grade reading (Bond & Dykstra, 1967)? Would there be common elements across teachers?

The second issue was what and how the children were learning. Farr (1985) provided a framework for several of our questions: *literacy learning is similar to other language learning, literacy growth is developmental,* and that we should expect *great individual variation in literacy development*, especially across contexts. Let us examine each of these tenets.

We have learned from children to view language holistically rather than in discreet categories of talking, reading, and writing. A holistic view of literacy leads us to questions about the relationship of reading and writing behaviors in the kindergarten learner. Ferreiro (1984, Ferreiro & Teberosky, 1982) documented some concepts young children have about reading and writing, related to their own writing and to adult-written tasks in an experimental setting. However, we wanted to look at children in a supported literacy environment, to document what happens over the course of a year, rather than in cross-sectional teacher-task situations. Other researchers have looked at specific connections between learning to read and write. Morris and Perney (1984) found the level of invented spelling to be highly predictive of first grade reading achievement as measured by word recognition. On the other hand, Bussis, Chittenden, Amarel, and Klausner (1985) found "little connection between the children's reading and the mechanical aspects of writing" (p. 107) in the first and second grade students they studied over 2 years. While the classrooms in both these studies were similar to our whole language classroom, neither of these studies looked at kindergarten children, or at writing behaviors such as scribble writing, drawing, mock letters, etc. We decided to investigate questions the teachers felt parents and administrators would ask, more traditional questions about the alphabet, sounds, words, and texts in relationship to the writing forms we were observing.

While teachers and researchers tend to agree that writing growth is developmental, various attempts at describing writing growth have yet to provide a clear answer to whether or not there is a uniform progression of writing behaviors. Ferreiro and Teberosky (1982) found five writing levels ranging from reproduction of writing features (scribbling, mock letters) to alphabetic writing (phonemic spelling). Temple, Nathan and Burris (1983) also found developmental writing levels closely paralleling Ferreiro and Teberoskys, which they called prephonemic, early phonemic, phonemic, transitional, and conventional. On the other hand, researchers such as Clay (1975), Dyson (1985), Harste, Woodward and Burke (1984) and Sulzby (1985) found no uniform pattern of development, but increasingly diverse and sophisticated writing behaviors based on abiding principles. What would we find, studying a large number of kindergarteners over the course of a whole year? Would children move from one writing behavior to a more sophisticated one, abandoning the earlier form? Would they accumulate new behaviors, using a variety by the end of the year? Would they take similar paths to more conventional writing.

Questions about writing growth took us directly to questions about individual variation. Because this was a classroom research study, we had no interest in controlling for variation of social variables. We chose to study all the children in each classroom, maintaining a wide variety of social, ethnic, language, and experiential backgrounds. Our classrooms included children with various learning abilities, including those for whom English was a second or foreign language. However, we did intentionally limit the situational context for writing. The teachers emphasized writing for expression and communication, to be shared with peers. Children wrote within this context regularly, with sharing an integral part of the process. We felt that our classrooms were based on the best model of literacy learning available, and that we would be able to describe emergent writing in a school setting which recreated the most facilitative home environments. What we wanted to discover, then, was how do entering reading and writing behaviors, the result of previous literacy experiences, affect development? How can individual variation and writing growth both be characteristic of young children (Dyson, 1985; Sulzby, 1985)? We felt with seven classrooms and 183 children, we would be able to shed more light on this relationship than previous small-number studies.

Method

Of the many questions generated in our meetings early in the year, we will report on the following in this paper:

1. How do different kindergarten teachers who are implementing a whole language philosophy structure literate environments and interact with emergent readers and writers?

2. What is the relationship between reading and writing development in kindergarten, based on entry knowledge of various aspects of reading and writing?

3. How do children develop as writers in whole language kindergartens?

Participants

Three of the kindergarten teachers taught following a whole language philosophy the year previous to the study; four were developing whole language classrooms for the first time. Three teachers recorded both morning and afternoon sessions of kindergarten (n = 46, 46, 23); four recorded only half days (n = 20, 13, 18, 18), for a total of 184 children whom we were able to follow through the whole year. At two schools especially, the turnover rate was quite high (over 60% in one case), keeping the number of full-year students low. No children were excluded from the study. There were children with identified or suspected learning problems, language delays of up to 2 1/2 years, children who were repeating kindergarten and those with probable emotional strains based on stressful home situations. In addition, English was a foreign or second language for about 10% of the children.

Data Gathering Procedures

Classroom context. In order to determine how the teachers translated their stated philosophies about literacy learning, I asked them to respond quarterly to a questionnaire about their writing instruction and support (Appendix A). The teachers responded to the questionnaire by noting the nature of typical writing periods and their philosophy regarding dictation, "overwriting" the child's invented message with conventional writing, and handwriting or correct letter formation. They also described other aspects of the writing process including instruction, conferences, and sharing. At the end of the year, teachers detailed additional aspects of their literacy programs, including instruction in letter names and sounds, integration of reading and writing with other learning, and the role literature played in their rooms (Appendix B). In addition to our weekly meetings and quarterly written reports, I was invited often to participate in classroom writing workshops, conferences, and sharing times. Since I did not enter any classroom unless invited, I did not conduct systematic observations.

Writing. At the end of each quarter, teachers filled out a *Types of Writing Produced* (TWP) form (Appendix C) for each student. Teachers marked every category in which they saw activity. They based their evaluations on daily interactions with their students during writing as well as on the writing products accumulated in their folders. Teachers also used the TWP record sheet to inform parents of their children's progress at conference times.

We devised the TWP based on our own observations as well as on our readings (Clay, 1975; Ferreiro & Teberosky, 1982; Sulzby, 1985; Temple, Nathan & Burris, 1982; and others). Our analysis and discussion in this paper include 14 of the writing behaviors: *Pictures Only* (drawing with no writing), *Scribbles* (intended as writing, not drawing), *Mock Letters* (letter-like forms - Clay's flexibility principle), *Recurring Sign* and *Repeated Word*: Mock or Real (Clay's recurring principle), *Letter Inventory* and *Word Inventory* (lists of memorized or copied letters or words - Clay's inventory principle), *Free Copy* and *Copy from Model on Own Paper* (Clay's copy principle), *Writes from Teacher Spelling* (when teachers responded to a request to spell a word), and four levels of *Invented Spelling*. These levels, based on the research of Graves (1983), Henderson and Beers (1980), Morris and Perney (1984), and Temple, Nathan and Burris (1982) are shown below, along with how the word "kitten" might be written in each:

Invented Spelling:	Beginning	K
	+ Ending	KN
	+ Middle	KTN
	+ Vowels	KETN, KITN, KITTN

Other categories on the TWP form will not be discussed.

Reading. We assessed each child on recognition of upper and lower case letters, environmental print word lists (names of colors, numbers and classmates), the reading of connected text (out of a preprimer from the district's basal series), and sound-to-letter analysis. For the latter, teachers asked children to identify pictures of objects and tell what letter the word began with. This assessment was done in September and again in May.

Analysis

Classroom context. Questionnaires for all teachers were examined for common elements each quarter, as well as for trends across quarters.

Writing. Numerical weights of 1 (Some), 2 (Often), and 3 (Always) were assigned to the frequency of each behavior, with zero assigned to categories not marked. The writing behaviors were examined for what the students did the most each quarter, as well as for the "highest" (most sophisticated) writing behavior the student attempted. The following categories, similar to types of writing observed by Sulzby (1985), were used to determine and compare writing sophistication:

Categories	Writing Behavior(s)
Drawing	pictures only
Prealphabetic	scribbles, mock letters, recurring sign
Prephonemic	letter inventory, word inventory, repeated word, free copy, copy from model on own paper, writes from teacher spelling
Phonemic 1	invented spelling (IS): beginning sounds
Phonemic 2	IS: beginning + ending sounds
Phonemic 3	IS: beginning + ending + middle sounds
Phonemic 4	IS: beginning + ending + middle + vowels sounds

Reading. Reading pretest and posttest data were tabulated and compared for the number of letters, words, and sounds children knew, and whether they could read the third pre-primer with 90% accuracy. This information was cross tabulated in order to group children according to reading knowledges. On the pretest, most children (161) fell into 1 of 9 categories of varying letter, sound, and word knowledge, and a 10th category (used for end-of-year comparisons) which included the first basal reader in September. Reading gain was determined by pretest/posttest comparisons using these categories, but combining Category 3 with 4, and Category 6 with 7 (since there was no clear hierarchy within these pairs). Cut-offs were used to group the data within each skill into "don't know" (recognition of 10 or fewer letters, no word or sound recognition, no conventional text reading); "learning" (middle range values); and "know" (high values). Table 1 shows the number of children in each reading category at the beginning and end of the year.

[Insert Table 1 about here.]

Reading/writing relationships. Spearman correlations were used to determine if children's entry knowledge of letters, sounds and words correlated with the progress they made in writing, or if their

initial writing behaviors correlated with gains in reading knowledges. Comparisons were made between all reading-related behaviors (pre and post) and all writing behaviors (each quarter) to determine how specific reading and writing knowledges might be related.

Findings and Discussion

Classroom Context

Our whole language kindergartens did have important elements in common, as well as individual differences. All teachers found 30 minutes to be about the right amount of time for the specified writing period; the number of times writing was included in the curriculum varied from two to five times a week, depending on the teacher and the week. One teacher, Kathy Jennings, noted, "In the beginning I tried writing three times a week, whenever time permitted. At that time writing was the first thing to be cut if we ran short of time. Once I worked it into the daily schedule, the kids came to enjoy and expect writing times." All teachers reported that during the year, more and more writing was done at other times (art, phonics, social studies), especially during "free time."

All teachers encouraged and taught children to choose their own topics, although they often suggested that children write about topics they were studying. They found three "bandwagon" topics: super heroes, rainbows, and friend books. Several teachers noted that towards the end of the year, children began writing more collaborative texts, such as the 8-page book by Joey, Ted, and Nick, entitled "E.T.": ETANDI FRIENDS E.T. SADTOHISFRNDUWANTTO PLAY HWTBHO TheEND (E.T. and I [are] friends. E.T. said to his friend, "You want to play?" He went back home. The End)

In some rooms, children worked in teacher-organized writing groups; in others, grouping was a casual, student-determined process. Children worked at writing tables or on the floor. Teachers encouraged the children to talk about what they were writing and to say the words and sounds they were using in their writing. Most conferences were informal, "roving" chats at first, focusing on talking about the picture the child had drawn, taking dictation if the child requested it. This varied some depending on the teacher's philosophy about the role of dictation in emergent literacy, a discussion too lengthy to include here. There was a movement throughout the year toward more structured and longer conferences, with an emphasis in the conferences toward independence and risk taking, including finding words in books and on walls, getting help from peers, and attempting invented spelling.

Sharing was an integral and key element of the writing program; however, the format and focus varied from room to room. One teacher emphasized good listening skills and responding in a way that "helps, not hurts." Another teacher encouraged sharing in small groups whenever a child wanted to read, whether the teacher was present or not. Another worked very specifically on the quality of questions the listeners asked and the quality of answers the author provided. Some classes did their sharing in small groups, others with the whole class. In some, children shared library books as well as their own writing. Wanda Clark noted that the quality of share time improved greatly when she included the sharing of library books.

Publishing was very informal in these classrooms, when it occurred at all. The teachers noted that sharing seemed much more important to the children than publishing. Informal publishing usually involved merely folding and stapling, which the children learned to do themselves. Occasionally, the teachers put student work together to make a class book, which occurred more often when the writing was related to topics of study. Published books went into the class library, home to share with families, or to related centers (e.g., the science center).

Perhaps the most important instructional trend we saw across classes was increased student independence in using reading and writing strategies. Teachers encouraged students to listen for sounds in words, to seek help from each other, and to use the entire room (walls, books, etc.) as a writing resource. Teachers who had been offering to take dictation phased out their offers for many

students about midyear. Instead, when the student requested dictation, the teachers would collaborate with the child, asking the child to tell what sounds she heard, to find a word in the room, or to write a name from memory. Teachers also noted that while they had been "nudging" certain children to write words, sentences or stories from the very beginning (those who had made attempts in these areas), about midyear they began having some whole-class lessons at the beginning of the writing period on hearing and writing sounds in words.

I was invited to do such a lesson in two classrooms one day. It was shortly after the Challenger disaster. I told the children that it was on my mind, and that I had decided to write about the one thing I wanted to tell them the most. We had a group discussion on how I should write, "I am very sad." In Muriel Cook's class, the children agreed I should write "i m f sad," which they had me change to "i m fr sad" after we reread it. In Laura Hoffman's class, the children had me write, "I m vre sad," after much discussion of "very." Then one child volunteered to try his hand at the board, writing "etbldp" as he repeated several times, "It blowed up."

We did not see immediate or dramatic effects of such group lessons, nor were we looking for them. Children who were not attempting phonemic writing did not suddenly try it. In fact, the most common immediate response to our lessons was for many of the children to copy the model sentences off the board--something we never would have asked the children to do. Then they resumed their chosen mode for the day. But we did, over time, find more and more children making phonemic attempts, as we will report in the next section.

Where did the teachers find the time to incorporate writing into their half-day programs? They reported much less use of "readiness" materials and a more integrated presentation of reading and writing throughout the day. Some of the formal writing period came from "free time"; also, children increasingly chose to write during free time in addition to their formal writing period. Teachers also reported fewer "craft" projects and more reading and writing related to areas of study.

Teachers stopped using many worksheets and copying exercises, but most of them continued to teach letters and sounds (usually a letter a week, then a sound a week). There were differences from previous years, however. There was more emphasis on sounds in the context of words, especially in rhymes and songs. There was much more writing in conjunction with letter and sound study, which often became group invented spelling times.

The biggest change in the reading program was that reading involved writing as well. Teachers emphasized reading and writing connections as children shared their own writing, sounded out words during writing and reading, and looked words up in favorite books. Teachers included reading and writing in the study of other content. Most teachers did not teach any "sight words" directly, although they sometimes helped a child learn such a word if he used it often in his writing.

We have reported some common characteristics of our whole language kindergartens; you would also find many differences if you visited these rooms. In some rooms there is a major emphasis on literature, in others, on oral language development. Some rooms are organized around learning centers. What we found encouraging about this diversity is that no teacher felt that she had given up anything important to her (learning centers, nursery rhyme units, alphabet instruction) in order to implement her developing whole language philosophy. Teachers only modified portions of the curriculum with which they had been dissatisfied.

Writing Development

The preliminary analysis of the writing data support Dyson (1985), Sulzby (1985) and others whose observations of young children writing indicate a general sequence of development but with great individual differences. Most children were writing more conventionally by the end of the year, according to the seven categories ranked as increasingly conventional, but their paths and rates were

quite diverse. A conservative interpretation of writing growth from first quarter to fourth, with growth defined as movement "up" the seven writing categories, is that 84% of the children showed growth, or movement in a postive direction. Of those who did not show growth, 2.5% were at the top level throughout the study, 5% seemed to regress, and 8.5% seem to make no progress (Table 2).

[Insert Table 2 about here.]

Interestingly, the majority of those who seemed to make no progress stayed in the third category (Prephonemic), which is by far the most diverse and which may very well conceal developmental change. For example, one might expect letter inventory to precede word inventory; *Free Copy* was increasingly encouraged by the teachers; and *Writes from Teacher Spelling* was usually discouraged. This is the only category without a consistent, clear pattern (Table 2). The incidence of *Pictures Only* (Category 1) remained high; all aspects of Category 2 (*Scribbles, Mock Letters, Recurring Sign*) dropped dramatically, and each level of *Invented Spelling* increased dramatically. Therefore, growth in the third category may have occurred but may not have been measured. Further, growth in some categories may be characterized by frequency changes and adding to one's writing repertoire, neither of which would be picked up by these gross measures. Let us look more closely at one of the children in this group.

Tanya is 1 of 11 children who stayed in Category 3 throughout the year. However, it is obvious from looking at her individual record sheet and accumulated writing samples that she did indeed become more literate. At the beginning of the year, Tanya could not write her name, knew only five letter names, and no letter sounds or words. By the end of October she was producing the following types of writing some of the time: pictures only, scribbles, mock letters, recurring sign, a few letters in a letter inventory, and repeated mock words. She also dictated occasionally.

In spite of the fact that Tanya was frequently absent, her teacher described her as a child who loved school and who engaged in all activities enthusiastically. "She has written on reams of paper," the teacher noted at the end of the year. She also had learned her upper and lower case letters, the written names of most of the children in the class, and several other words posted around the room. She still was not making sounds/symbol correspondences either in reading or writing, but her writing profile revealed growth in both frequency of various types of writing, and additions to her writing repertoire. She was writing not only "Tanya" but her middle and last names, using most of the letters of the alphabet in her letter inventories, writing word inventories, copying from environmental print, and asking the teacher to spell words for her.

The group data show quarter-by-quarter increases in the number of children attempting phonemic writing, as well as in the sophistication of their spelling. Growth across classes can be seen by examining the distribution of 183 students according to the highest category of writing they attempted. Table 3 shows that while *prephonemic* activity was highest first and second quarters, some children were attempting *phonemic* writing. *Prephonemic*, a large and diverse category, remained high second and third quarters, but by third quarter more children were attempting various levels of *phonemic* spelling (91) than *prephonemic* (56). By fourth quarter, one third of all the children were attempting to use consonants and vowels throughout the words they spell; 72% were using some level of invented spelling at least some of the time.

[Insert Table 3 about here.]

It is important to note that these categories were *not* exclusive, contrary to what Ferreiro and Teberosky (1982) found in describing writing levels in the students they researched. They explained movement to increasingly higher writing levels as necessary when children became dissatisfied with how their hypotheses failed to match with new insights about written language. For example, when the syllabic hypothesis came into conflict with the previously held minimum number of letters hypothesis, children moved to the alphabetic hypothesis. Instead, and in agreement with Sulzby (1985), a more cumulative pattern of development occurs; children in the present study continued to use several

categories of writing, even as they added more conventional categories to their repertoires. Writing development is not a stair-stepped sequence. Rather, children become more flexible in their use of an increasing number of literacy strategies.

To get at the nonexclusive nature of the writing behaviors more systematically, we looked at the 14 *writing behaviors* discussed throughout the paper as well as the seven *writing categories* (Drawing, Prealphabetic, Prephonemic, Phonemic 1-4) in which we grouped the behaviors. We learned that the majority of children did not abandon previous writing behaviors all together, but did in fact add to their repertoires. One way of making sense of the frequency counts is to examine how many children were exhibiting three or more types of writing. Looking at this arbitrary figure over four quarters, we find a steady percentage increase: 57% first quarter, 65% second quarter, 70% third quarter and 80% by the end of the year.

The categorical analysis is also important, because if our categories do in fact represent something akin to new hypotheses, new insights about creating text, we need to know if children abandon one category to move to the next, or if they add *categories* to their writing repertoires. We found the latter to be true. The number of children operating in three or more categories nearly doubled by the end of the year, moving quarter by quarter from 38% to 44% to 58% to 73%. Further, only 10% of the children were operating in fewer categories by the end of the year. So children did not abandon Prealphabetic behaviors, for example, when they began exhibiting Prephonemic strategies.

In addition to an increased repertoire of writing behaviors which included increasingly conventional writing, children showed the individual variability that Sulzby and Dyson found, and which Farr included as a major tenet of language development. There were a great many pattterns of development across the four quarters. When we examined the numerical patterns of the highest category attempted by quarters, we found 124 different paths. For example, the following children all showed growth from *Prealphabetic* in the first quarter to *Phonemic 2* by the fourth quarter, but their paths were quite different:

Child	Quarter 1	Quarter 2	Quarter 3	Quarter 4
A	scribbles	drawing	phonemic 2	phonemic 2
B	scribbles	scribbles	scribbles	phonemic 2
C	scribbles	writes from teacher spelling	phonemic 4	phonemic 2

We have learned from this study that most children in whole language kindergartens progress as writers; only 5% seemed to regress. These findings are consistent with what Dyson calls "progress toward the conventional model" (1985, p. 64) and Sulzby's "evidence of patterns of development emerging toward conventional performance" (1985, p. 195). They are consistent with a loose rather than a strict hierarchy of writing development as defined by Ferreiro and Teberosky (1982).

Several questions remain. We suspect that the third category, *Prephonemic*, is too broad, for reasons discussed earlier. There should be some way of accounting for movement within a category, to show that children who appeared to stay at one level throughout the year were perhaps adding to their repertoires by producing other types of writing and/or applying the writing behaviors in increasingly sophisticated situations (e.g., stories). Going back to individual data sheets may answer some of these questions; others will require further research.

It is also important to look at what we mean by conventionality. The argument could be made that when sound/symbol encoding becomes more of a priority, other conventions may temporarily lose

their salience. Linear, cursive-like scribble writing covering a sheet to resemble a letter is certainly more conventional in form than DGMILVUPAUL (Dear Grandma I Love You Paul). If we consider message quality (Dyson, 1985) or quality of composition (Graves, 1982), then drawings and elaborated dictations are superior to many invented spelling attempts or word inventories.

It is helpful at this point to remember that movement towards phonemic conventionality was not exclusive, that even though children attempted "higher" levels with more frequency as the year progressed, they did not abandon earlier forms altogether. In fact, drawing without any accompanying writing remained extremely high all four quarters, even when most of the children were using at least some letters to represent words. The need to express themselves and communicate may have been fulfilled by both their drawing and by the extensive sharing of all types of writing products, while the need to approximate conventionality provided the impetus for growth in sound/symbol representation. Thus, it seems that children are concurrently acting on sustaining principles (Clay, 1975) which will continue to guide them as writers, *and* progressing developmentally towards conventional writing.

The sequence of writing development we have described, one of several possible sequences (Sulzby, 1985), must also be considered in the context of the great individual variation found in the present study and well described in many recent studies of emergent literacy (Dyson, 1985; Graves, 1982; Harste, Woodward & Burke, 1984). What we were able to do was document on a large scale that even children who begin and end at the same approximate places take very different paths in their writing development.

In order to go from these large scale findings back to the classroom, let us look more closely at two of the children we met briefly at the beginning of the paper. What does this combination of growth and individual variation mean for kindergarten children as different as Allie and Lawrence?

Allie came to kindergarten knowing 45 upper and lower case letters, 21 words, and identifying three consonant sound/symbol correspondences. During the first quarter, she produced many dictated stories, many scribble stories, one letter inventory, and often included music in her stories. As her teacher noted, "She seems to find security in writing the repeated patterns of notes for her stories." One such dictated story was, "Two girls were lost in the woods. They were trying to find their way home so they made up a land of love. The heart land returned the girls to home (hum here). They saw their house that was rainbow colors. Their mom and dad said they could go and visit the heart land" (Oct. 4).

As the year progressed, Allie dictated less and sounded out her own words more. She stopped scribble writing midyear. Her teacher reported that by third quarter, "Allie has begun to try invented spelling for ambitious words--still needs some continuing encouragement." By fourth quarter, she was writing many sentences and some stories. She often left out "little" words, but noted orally that she was doing so ("I'll skip 'the' [or some other little word].") For example, she wrote KraRLS--Carissa (and me) were looking (at my) dolls to caption a photo of Allie and Carissa in the house corner. On shorter works, she tended to include more letters, as in I YtBotng--I went boating. Allie's teacher also noted that by the end of the year, Allie and her mother were often writing at home, in the same manner Allie wrote at school, with support for her emerging sense of words and sounds.

Lawrence came to kindergarten having had little interaction with print. His mother wrote on a second or third grade level, according to the teacher's estimate. His grammatical patterns showed language immaturity, although he was highly verbal and an entertaining storyteller. He recognized only two letters, no sounds, and no words; his early writing consisted mainly of pictures, scribbles, mock letters, and dictation.

Lawrence's teacher, Laura Hoffman, recognized specific reading/writing connections in Lawrence's development. Early in the year, when Lawrence produced mostly scribbles and mock letters, she noted, "Lawrence asked me to read 'B' and assorted mock letters--satisfied with garbled words." When

the teacher listened to one of his stories, he invariably shouted, "Write it, write it!" He was an enthusiastic audience for other writers; at one point he retold a story Jed had shared, adding a reason for Jed to be sad. "Lawrence loves the stories I read to the class. He is very often (nearly always) the first person to pick up a book after I've read it, hanging back from the next activity until I discover him. If he finds the book I'm going to read on my chair, he will look through it and then give away what is going to happen! He also finds books on my desk (a hands-off place) he wants me to read. He truly loves books."

By the end of the year, Lawrence was still drawing, scribbling, using mock letters, and dictating whenever he could get someone to write for him. However, he was scribbling and using mock letters less frequently. He stopped using the recurring sign after the first quarter. He added letter inventories, repeated mock words, and labels to his repertoire. In her last report, Laura noted that he knew 42 upper and lower case letters, 12 of 18 sounds, 12 of 23 words around the classroom (mostly classmates' names), and "he will do some invented spelling [beginning and ending sounds] with a lot of help from me or another student." For example, in labeling a photograph of himself and classmates on the playground he agreed to write "picture" (PR) if his teacher would write "We were taking a picture." He continued his active engagement with books.

For Allie, school was an extension of her literate environment; for Lawrence, school was an introduction to the joys of literacy. These whole language teachers provided the supportive literacy environments that produced real language learners.

Reading/Writing Relationships

Using gross measures of writing growth and reading growth from the beginning of the year to the end of the year, we looked at correlations between specific writing and reading behaviors in September and overall growth. We were interested in how entry behaviors/knowledge might be associated with the child's rate of literacy development.

We found that there were no significant correlations between the writing growth of children and the reading knowledge they brought to kindergarten in letter identification, word reading, sound/symbol production, or text reading. Similarly, there were no significant correlations between the reading growth of children and the writing behaviors they exhibited at the beginning of the school year. This is, indeed, a significant finding. It means that children are not limited in their ability to grow as writers by the alphabet, sound, or word knowledge they bring to school, nor is their acquisition of these reading-related behaviors limited by their level of writing sophistication upon entering kindergarten.

This finding is contrary to Ferreiro and Teberosky's finding (1982) that their "lower class" children who entered school with limited literacy made little or no progress. In our study, entry level did not determine exit level: most children made progress regardless of where they started in either reading or writing.

While our children were in kindergarten rather than first grade, both studies describe initial instruction. We believe that it was the instruction in these kindergartens, instruction that supported the continued exploration and "invention" of language, that was the crucial difference. Our hypothesis supports Ferreiro and Teberosky's contention that it is the mismatch between instruction and children's concepts about literacy that stymies development.

Next we examined a complete array of correlations between reading pretest and posttest categories (alphabet, words, sounds, text reading) and all 14 writing behaviors. Ten of the 14 writing behaviors showed low correlations throughout the year. However, the four phonemic writing categories were correlated with reading knowledge and the values increased by the fourth quarter (Table 4). Correlations between letter, sound, and word knowledge at the end of the year and the use of letters in spelling beginning, ending and middle sounds were particularly strong.

[Insert Table 4 about here.]

Correlations between reading postests and writing followed a somewhat predictable pattern; that is, the highest correlations were when the testing times were closest to each other (at the end of the year). What was contrary to prediction, and thus more interesting, is that correlations between reading pretests and writing also increased over the four quarters. We would have expected correlations to be higher in the first quarter, due to the proximity of testing. This may mean that entry reading measures did have some predicative value for children's use of invented spelling. Children improved their ability to make connections between sounds and letters in words they were reading as they learned to represent words on paper.

Although there appear to be some differences among correlations involving sounds, letters and words, we cannot make meaningful comparisons because of the correlations among these variables: alphabet with words, $r = .45$; alphabet with sounds, $r = .56$; and words with sounds, $r = .65$. However, we did not think it meaningful or accurate to aggragate these scores, due to the distributions of reading knowledge exhibited on the pretest (refer to Table 1 again). Therefore, we chose to include the correlations as they occurred and to interpret here broad trends rather than specific differences.

What we have learned from these comparisons of reading and writing behaviors from the beginning to the end of the kindergarten year is that children entering school with some knowledge of the alphabet and/or letter/sound correspondence are more likely to be using that knowledge to compose using invented spelling by the end of the year. We also know that entry reading and writing behaviors do not limit literacy development.

Interpreting these findings in light of the whole language classrooms in which they occurred, we might conclude that such an instructional philosophy helps each child develop fully, regardless of initial strengths; and further, enables the vital connection between reading and writing, since conventional measures of these abilities showed increasing correlations. Conversely, one might argue that this growing correlation is a natural maturational phenomenon. Actually, the second interpretation is consistent with the first. As we have argued, the teachers' philosophy supported the continued emergence of literacy, built on what each child understood about literacy. Instruction supported emergent literacy development (Teale & Sulzby, 1986).

The findings about reading/writing relationships in this study are limited by the measures of reading as well as by the method of inquiry. We addressed our interest in traditional reading measures and writing growth, but are left dissatisfied. We did not have effective, comprehensive measures of reading. We looked at writing as a whole, in a natural context throughout the year; but we only measured reading in parts, with not enough of the parts represented and not enough context to focus the picture. We are still searching for methods to study larger groups of children in school settings where reading (e.g., levels of storybook reading, strategies for decoding, reading to continue a writing piece) and writing (both the development of sustaining principles and growth towards conventionality) must surely be intertwined.

Implications for Research and Teaching

Implications are directed to teachers as researchers, because we feel strongly that more teacher researchers are needed in the field of emergent literacy. We began with questions which really interested and concerned teachers. Teachers not only formulated the questions for inquiry, they constructed the data-gathering techniques and instruments. We met regularly to exchange findings, to talk about individuals as well as whole classes, to speculate on writing development and reading/writing relationships. We converted a need to know more about how children developed, as well as a desire to explain that development to others (especially parents), into a collaborative research project.

Second, we need research that describes large, representative populations in addition to that which describes a few children in great detail. Studies of individual children and specific classrooms have given us a firm knowledge base for both teaching and inquiry. We urge others to include, as we did, children who come to school hungry, who speak little or no English, who live in emotional and physical conflict, and others our *system* might be "at risk" for failing to teach. In addition to studying whole groups, work is needed to find out more about the children who did not show clear progress, especially those 5% who appeared to regress.

Third, we need more research in classrooms in which the instructional program is organized on the basis of new research, classrooms which are responding to what we are learning about how children learn and how they can be taught. The theory has informed practice; now the practice needs to inform theory.

In the present study, the instructional philosophy was consistent with what we believed to be the best possible learning conditions for literacy development. The teachers attempted to foster literacy in school the way it is fostered in homes where literacy develops without formal instruction. We extended Thomas's (1985) observations about learning to read at home to learning to write at school, agreeing that such learning was the result of "the time, the social interaction, the clarification of linguistic/literacy factors, and the systematic approach to print engaged in by . . . parents [which] would be called exemplary teaching if done in the classroom . . ." (p. 473). Studies in classrooms like these provide a feasible continuum for studying emergent literacy. More research needs to be done in whole language classrooms.

Fourth, we need more research that describes what children do, in natural settings (in this case, the classroom) over time, in addition to research that reports how children respond to certain tasks. Uniform tasks provide valuable information about what children can do; coupled with interviews, such research provides a window on literacy development. But we must continue to balance this information with accurate descriptions of what children actually do on a day to day basis, without experimenter's questions or conditions.

How can a better understanding of how children grow as writers inform our teaching? First, it helps define a zone of proximal development, areas in which growth is most likely to occur. Kindergarten teachers should not be expecting everyone to be writing long stories with invented spellings (Sulzby, in preparation), nor should they expect children to "progress" away from drawing pictures with no attempts at print. They should expect that once children begin to hear beginning sounds, they will soon be ready to listen for ending, and then middle and vowel sounds. A problem for many teachers moving from a skills-oriented to a process-oriented teaching philosophy is how to help children learn without preempting the learning process. When asked how a teacher knows when to intervene, when to "push," Graves told a group of whole language teachers that he intervenes more and more as he gets to know young writers. "Then I watch like a hawk to see if they understand, and if they don't, I try a little later in the year and watch again" (Allen, 1986, October). The information in our study should help teachers decide what to observe in children's literate behaviors, and how to plan successful, relevant instruction. Expecting wide individual differences, both in writing development and reading/writing relationships, does more than comfort "failed" instruction. It forces teachers to replace any predetermined curricula with daily interaction around what each child is doing. Graves (1982) describes this as drawing the curriculum out of each child. Teachers should note that it was in the areas where teachers encouraged independence (*Free Copy, Invented Spelling*) that students showed the most consistent growth (Table 2).

Teachers should take assurance from this study that the majority of their students will make progress in writing without required copying, handwriting exercises, or other tasks of dubious value. Instead, when given the opportunity, children provide their own practice (Clay, 1975). They list words they know, make pages of symbols increasingly approaching conventional form, copy print from their own papers

and throughout the room, borrow each others' name tags to include them in their stories, and ask--at the exact moment they need to know--"How do you make a 'j'?"

Kindergarten teachers can also build on the correlations between alphabet, word and sound knowledge and invented spelling. There was much talk about literacy in these classrooms; many connections between reading and writing were discussed and made explicit. It may be especially noteworthy that letter-sound instruction turned into reading/writing instruction in these classrooms. If teachers can convince the administrators who purchase separate workbooks for phonics, "readiness," and handwriting to put the money into the real tools of reading and writing (paper, pencils, books, typewriters, typists), children will develop integrated views of reading and writing, views that should enable growth in both areas (Graves & Hansen, 1983; Smith, 1983).

Finally, teachers can rejoice that the knowledge children bring to school about reading and writing does not limit their literacy learning. All children have an equal opportunity to grow if teachers respond to what they can do and facilitate what they attempt.

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Table 1

Kindergarten Reading Categories

Category Description	Number in Sept[a]	Number in May[b]
1. Children who, on these measures, do not yet know the alphabet, words or sounds,	35	2
2. are learning the alphabet but do not know words or sounds,	31	1
3. are learning the alphabet and sounds, but do not know words,	9	0
4. are learning the alphabet and words, but do not know sounds,	18	8
5. are learning the alphabet, words, and sounds,	12	7
6. know the alphabet and are learning sounds but not words,	10	1
7. know the alphabet and are learning words but not sounds,	13	6
8. know the alphabet and are learning sounds and words,	20	37
9. know the alphabet, words and sounds,	12	57
10. know the alphabet, words, sounds, and can read connected text, preprimer Level 3.	1	27

[a]There were 22 children who did not fall into one of these categories at the beginning of the year; most of them (14) were in the "knows the alphabet" category, where what they knew was more evenly distributed than for children in the other two alphabet categories.

[b]There were 37 children who did not fall into one of these categories at the end of the year.

Table 2

Weighted* Scores of Individual Writing Categories

Writing Categories	Writing Behaviors	Quarter 1st	2nd	3rd	4th
Drawing	Pictures Only	298	282	241	227
Prealphabetic	Scribbles	134	90	43	35
	Mock Letters	98	77	42	12
	Recurring Sign	18	12	12	8
Prephonemic	Letter Inventory	78	74	61	61
	Word Inventory	34	35	70	53
	Repeated Word	47	48	37	50
	Free copy	61	78	90	108
	Model copy	25	40	35	17
	Writes from Teacher	24	28	42	38
	Spelling				
		Invented Spelling:			
Phonemic 1	Beginning	34	65	148	229
Phonemic 2	+ Ending	36	56	117	183
Phonemic 3	+ Middle	24	32	74	139
Phonemic 4	+ Vowels	19	17	45	106

*Score for each writing category =

1 x frequency of "some"
2 x frequency of "often"
3 x frequency of "always"

Table 3

Distribution of Students in Highest Category in Which Writing Activity Occurred

Writing Category	Quarter 1st	2nd	3rd	4th
1. Drawing	35	23	14	10
2. Prealphabetic	47	28	15	5
3. Prephonemic	68	85	56	36
4. Phonemic 1	8	9	21	24
5. Phonemic 2	10	15	27	29
6. Phonemic 3	5	12	21	18
7. Phonemic 4	10	11	29	61
(4-7 Phonemic)	(33)	(47)	(91)	(132)

Table 4

Reading/Writing Correlations

	Phonemic Writing Levels, by Quarter															
Reading	**phonemic 1**				**phonemic 2**				**phonemic 3**				**phonemic 4**			
Pretests	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ABCs	.26	.37	.43	.57	.27	.42	.46	.53	.28	.35	.38	.43	.24	.27	.35	.37
words	.43	.34	.32	.38	.37	.40	.37	.40	.30	.35	.31	.39	.29	.34	.37	.38
sounds	.37	.43.	46	.53	.38	.49	.50	.48	.32	.38	.37	.53	.30	.30	.35	.44

	Phonemic Writing Levels, by Quarter															
Reading	**phonemic 1**				**phonemic 2**				**phonemic 3**				**phonemic 4**			
Posttests	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ABCs	.23	.25	.32	.40	.18	.24	.32	.39	.17	.21	.27	.34	.14	.15	.20	.28
words	.36	.44	.45	.58	.32	.45	.46	.52	.28	.37	.39	.49	.27	.28	.34	.43
sounds	.26	.40	.50	.63	.23	.41	.51	.62	.25	.35	.38	.54	.24	.26	.34	.47
text	.35	.23	.33	.32	.32	.34	.41	.31	.29	.38	.40	.41	.24	.29	.39	.34

Note. All correlations based on 183 children.

*Correlations over .25 are significant at $p < .001$.

Appendix A

KINDERGARTEN WRITING STUDY

Teacher

Date

Writing Practices:

typical writing period (1 2 3 4 5 times weekly)

instructions to children during writing period

your role during writing period

comments on topic choice

talking/writing

conferences

publishing

other

Assistance Philosophy

Do you offer to take dictation? How do you offer? Under what circumstances?

Do you offer to overwrite? How do you offer? Under what circumstances?

If you do not offer to take dictation or overwrite, how do you respond when a child asks for one of these services?

How are you documenting offers and requests for dictation and overwriting?

What trends are you seeing in these two areas at this point in the year?

Handwriting

What is your approach/philosophy to correct letter formation?

Appendix B

End-of-Year Reading Instructional Questionnaire

How would you describe your reading instructions in terms of the following:

approach

supplementary materials

phonics instruction

alphabet instruction

integration with other learning

time spent each day

library, other books used

learning sight words (including colors, numbers, etc.)

Appendix C

Name _____ dates _____

TYPES OF WRITING PRODUCED

category	frequency some	often	always	comments
pictures only				
scribbles				
mock letters				
own name				
recurring sign (music, pattern)				
letter inventory				
word inventory				
repeated word: mock or real				
free copy (room, books, etc.)				
copy from model on own paper				
dictated: words, captions				
sentences				
stories				
writes from teacher spelling				
invented spelling:				
beginning				
+ ending				
+ middle				
+ vowels				
labels on pictures				
syllabic principle:				
prephonemic				
phonemic				
sentences				
stories				
other				

On back, jot notes on the following:

1. chronological description of several examples of writing, noting trends (attach copies)
2. note on dictation and overwriting requests or response to offers from you
3. child's attitude towards writing
4. summary of progress
5. other

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